

**IN THE CLAIMS:**

*Set forth below in ascending order, with status identifiers, is a complete listing of all claims currently under examination. Changes to any amended claims are indicated by strikethrough and underlining. This listing also reflects any cancellation and/or addition of claims.*

1. (Canceled)

2. (Currently Amended) A method, comprising:

storing a portion of sound data in a memory buffer of a computer;

analyzing the portion of sound data using heuristics to identify at least one sound feature from the portion of sound data, ~~The method of claim 1,~~ the analyzing including: identifying at least one frequency component of a sound feature, the at least one frequency component being from a first frequency range; and

executing at least one haptic effect based on the at least one sound feature, the haptic effect being associated with the portion of sound data.

B1 cont 3. 2 (Previously Presented) The method of claim 2, wherein at least one haptic effect executed is associated with the at least one frequency component.

4. (Currently Amended) A method, comprising:

storing a portion of sound data in a memory buffer of a computer;

analyzing the portion of sound data using heuristics to identify at least one sound feature from the portion of sound data, ~~The method of claim 1,~~ the analyzing including: separating the portion of sound data into a plurality of frequency components associated with a plurality of frequency ranges by applying a plurality of filters to the portion of sound data; and identifying a sound feature associated with at least one frequency component from the plurality of frequency components; and

executing at least one haptic effect based on the at least one sound feature, the haptic effect being associated with the portion of sound data.

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5. (Previously Presented) The method of claim 4, the plurality of filters having at least:

a low-pass filter; and  
a high-pass filter.

6. (Currently Amended) The method of claim ~~4~~ 4, the analyzing including: separating the portion of sound data into a plurality of frequency components associated with a plurality of frequency ranges using a fast Fourier transform (FFT); ~~and~~

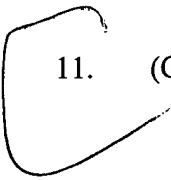
~~identifying a sound feature associated with at least one frequency component from the plurality of frequency components.~~

*Beant*  
7. (Previously Presented) The method of claim 6, wherein a number of outputs from the fast Fourier transform are grouped to provide sound features associated with each frequency range from the plurality of frequency ranges.

8. (Previously Presented) The method of claim 4, wherein the at least one frequency component is each associated with a haptic effect related to the frequency range associated with the at least one frequency component.

9. (Previously Presented) The method of claim 4, wherein the at least one frequency component is each uniquely associated with a periodic haptic effect having a frequency corresponding to the plurality of frequency ranges associated with the at least one frequency component.

~~10.~~ <sup>3</sup> (Currently Amended) The method of claim ~~4~~ <sup>1</sup> 2, wherein the at least one haptic effect was previously mapped to the at least one sound feature.

 11. (Canceled)

*P*

<sup>10</sup>  
~~12.~~ (Currently Amended) A method, comprising:  
storing a portion of sound data in a memory buffer of a computer;  
analyzing the portion of sound data using heuristics to identify at least one high-level  
sound feature from said portion of sound data, the at least one high-level sound feature being  
associated with at least one high-level haptic effect. ~~The method of claim 11,~~ the analyzing  
including:— identifying at least one frequency component of a sound feature from a first  
frequency range; and  
executing the at least one high-level haptic effect approximately with an output of the  
associated high-level sound feature.

<sup>11</sup> <sup>10</sup>  
~~13.~~ (Previously Presented) The method of claim ~~12,~~ wherein the at least one high-  
level haptic effect is associated with the at least one frequency component.

<sup>10</sup>  
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14. (Currently Amended) A method, comprising:  
storing a portion of sound data in a memory buffer of a computer;  
analyzing the portion of sound data using heuristics to identify at least one high-level  
sound feature from said portion of sound data, the at least one high-level sound feature being  
associated with at least one high-level haptic effect. ~~The method of claim 11,~~ the analyzing  
including:— separating the portion of sound data into a plurality of frequency components  
associated with a plurality of frequency ranges by applying a plurality of filters to the portion of  
sound data;— and identifying a sound feature associated with at least one frequency component  
from the plurality of frequency components; and  
executing the at least one high-level haptic effect approximately with an output of the  
associated high-level sound feature.

15. (Currently Amended) The method of claim ~~14~~ <sup>14</sup>, the analyzing including:  
separating the portion of sound data into a plurality of frequency components associated with a  
plurality of frequency ranges using a fast Fourier transform (FFT); and  
~~identifying a sound feature associated with at least one frequency component from the~~  
~~plurality of frequency components.~~

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16. (Previously Presented) The method of claim 15, wherein a number of outputs from the fast Fourier transform are grouped to provide sound features associated each frequency range from the plurality of frequency ranges.

17. (Previously Presented) The method of claim 14, wherein the at least one frequency component is each associated with a haptic effect related to the frequency range associated with the plurality of frequency components.

18. (Previously Presented) The method of claim 14, wherein the at least one frequency component is each uniquely associated with a periodic haptic effect having a frequency corresponding to the plurality of frequency ranges associated with the at least one frequency component.

*12*  
~~19.~~ (Currently Amended) The method of claim ~~11~~ *10*, wherein the least one high-level haptic effect is executed as a haptic sensation output by a haptic feedback device.

*13*  
~~20.~~ (Currently Amended) The method of claim ~~11~~ *10*, wherein the at least one high-level haptic effect is stored in memory of the computer as a created haptic effect.

*21.* (Canceled)

*19*  
~~22.~~ (Amended) A computer readable medium having code stored thereon, the code comprising:

code to store a portion of sound data in a memory buffer of a computer;

code to analyze the portion of sound data using heuristics to identify at least one sound feature from the portion of sound data, The computer readable medium of claim 21, the code to analyze including: code to identify at least one frequency component of a sound feature, the at least one frequency component being from a first frequency range; and

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code to execute at least one haptic effect based on the at least one sound feature, the at least one haptic effect being associated with the portion of sound data.

<sup>20</sup>  
23. (Previously Presented) The computer readable medium of claim <sup>19</sup>22, wherein at least one haptic effect is associated with the at least one frequency component.

<sup>22</sup>  
24. (Currently Amended) A computer readable medium having code stored thereon, the code comprising:

code to store a portion of sound data in a memory buffer of a computer;

code to analyze the portion of sound data using heuristics to identify at least one sound feature from the portion of sound data. ~~The computer readable medium of claim 21,~~ the code to analyze including:— code to separate the portion of sound data into a plurality of frequency components associated with a plurality of frequency ranges by applying a plurality of filters to the portion of sound data;—, and code to identify a sound feature associated with at least one frequency component from the plurality of frequency components; and

code to execute at least one haptic effect based on the at least one sound feature, the at least one haptic effect being associated with the portion of sound data.

<sup>23</sup>  
25. (Currently Amended) The computer medium readable of claim <sup>22</sup>24, the code to analyze including:— code to separate the portion of sound data into a plurality of frequency components associated with a plurality of frequency ranges using a fast Fourier transform (FFT); and

code to identify a sound feature associated with at least one frequency component from the plurality of frequency components.

<sup>24</sup>  
26. (Previously Presented) The computer readable medium of claim <sup>22</sup>24, wherein the code to analyze is operative to associate each frequency component from the plurality of frequency components with a haptic effect.

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<sup>21</sup>  
~~27.~~ (Currently Amended) The computer readable medium of claim ~~21~~<sup>19</sup>, wherein the at least one haptic effect was previously mapped to the at least one sound feature.

<sup>25</sup>  
~~28.~~ (Currently Amended) An apparatus, comprising:  
B1 concl. means for storing a portion of sound data in a memory buffer of a computer;  
means for analyzing the portion of sound data using heuristics to identify at least one sound feature from the portion of sound data, the means for analyzing being configured to identify at least one frequency component of a sound feature, the at least one frequency component being from a first frequency range; and  
means for executing at least one haptic effect based on the at least one sound feature, the haptic effect being associated with the portion of sound data.

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